WHAT IS CLAIMED IS:

1. An encoding method performed by an encoding apparatus creating a content file, said method comprising:

    first through Mth encoding processing steps of encoding an input signal or an input data file at mutually different compression

5   rates, respectively, for output, (wherein M is an integer equal to or greater than two); and

    a step of writing encoded data obtained by the encoding at said first through Mth encoding processing steps into a file as independent tracks, respectively.

2. An encoding method performed by an encoding apparatus creating a content file, said method comprising:

    first through Mth encoding processing steps of encoding an input signal or an input data file at mutually different compression

5   rates, respectively, for output (wherein M is an integer equal to or greater than one);

    a step of generating at least one item of error correction code data from at least one of encoded data obtained by encoding at said first through Mth encoding processing steps; and

10   a step of writing the encoded data and the error correction code data into a file as independent tracks, respectively.

3. The encoding method defined in claim 1 or 2, further comprising the steps of:

    Intra-frame encoding the input signal or the input data file; and

    writing encoded data obtained by the encoding into said file as

5   an independent track.

4.   An encoding method performed by an encoding apparatus creating a content file, said method comprising:

first through Mth encoding processing steps of encoding an input signal or an input data file at mutually different compression 5   rates, for output (wherein M is an integer equal to or greater than two); and

a step of writing encoded data with a preset time difference or interleaving into a file as independent tracks, respectively.

5.   An encoding method performed by an encoding apparatus creasing a content file, said method comprising:

first through Mth encoding processing steps of encoding an input signal or an input data file at mutually different compression 5   rates, respectively, for output (wherein M is an integer equal to or greater than two);

a step of generating at least one item of error correction code data from at least one of encoded data obtained at said first through Mth encoding processing steps; and

10   a step of writing the encoded data and the error correction code data with a preset time difference or interleaving into a file as independent tracks, respectively.

6.   The encoding method defined in claim 4 or 5, further comprising the steps of:

Intra-frame encoding the input signal or the input data file; and

writing the encoded data with a preset time difference or

5   interleaving the encoded data, for writing into said file, as an independent track.

7.   The encoding method defined in any one of claims 1 through 6, wherein when the M is the integer equal to or greater than two and the encoding is performed, at at least one of said second through Mth encoding processing steps, the encoding is performed using an

5   encoding parameter in encoding processing at said first encoding processing step.

8.   The encoding method defined in any one of claims 1 through 7, wherein when the M is the integer equal to or greater than two, a method of the encoding and a frame configuration are the same at said first through Mth encoding processing steps.

9.   The encoding method defined in any one of claims 1 through 8, wherein when the M is the integer equal to or greater than two, the input signal or data in at least one of a same time period and a same location is encoded as an encoding unit and written into said file at

5   said first through Mth encoding processing steps.

10.   The encoding method defined in any one of claims 1 through 9, wherein when the M is the integer equal to or greater than two, compression rates for the encoding at said second through Mth encoding processing steps are equal to or higher than a compression rate for the encoding at said first encoding processing step.

5   rate for the encoding at said first encoding processing step.

11.   The encoding method defined in any one of claims 2, 3, and 5 through 10, wherein when a plurality items of the error correction code data are generated from the encoded data in said encoding method, each

of the error correction code data is at least one of:

5   (a) the error correction code data obtained by a different error correction encoding scheme; and

    (b) the error correction code data obtained by a same error correction encoding scheme but by a different setting.

12. A content distribution method comprising the steps of:

    reading at least one item of encoded data from a content file, by a content distribution apparatus; and

    transmitting at least a part of first through Nth encoded data

5 using first through Nth encoded data transmission processing (wherein N is an integer equal to or greater than two), from the encoded data read by said content distribution apparatus.

13. A content distribution method comprising the steps of:

    reading at least one item of encoded data and at least one item of error correction code data from a content file, by a content distribution apparatus; and at least one of

5   (a) transmitting at least a part of first through Nth encoded data (wherein N is an integer equal to or greater than one) from the read encoded data and the read error correction code data by said content distribution apparatus; and

    (b) transmitting at least a part of the error correction code data

10 from the read encoded data and the read error correction code data by said content distribution apparatus.

14. The content distribution method defined in claim 12 or 13, further comprising the steps of:

reading at least one item of Intra-frame encoded data from said content file, by said content distribution apparatus; and

5   transmitting the at least one Intra-frame encoded data by said content distribution apparatus;

said content distribution apparatus transmitting at least a part of the Intra-frame encoded data.

15.   A content distribution method comprising the steps of:

reading at least one item of encoded data from a content file by a content distribution apparatus; and

transmitting first through Nth encoded data using first through

5   Nth encoded data transmission processing (wherein N is an integer equal to or greater than two) by said content distribution apparatus;

said content distribution apparatus transmitting at least a part of the first through Nth encoded data with time difference or interleaving.

16.   A content distribution method comprising the steps of:

reading at least one item of encoded data and at least one item of error correction code data from a content file, by a content distribution apparatus;

5   transmitting first through Nth encoded data (wherein N is an integer equal to or greater than one) by said content distribution apparatus; and

transmitting at least one item of error correction code data by said content distribution apparatus;

10   said content distribution apparatus transmitting with a time difference or interleaving at least one of:

(a) at least a part of the first through Nth encoded data, respectively; and

(b) at least a part of the error correction code data; for

15 transmission.

17. The content distribution method defined in claim 15 or 16, comprising the steps of:

reading at least one item of Intra-frame encoded data from said content file, by said content distribution apparatus; and

5 transmitting the at least one Intra-frame encoded data by said content distribution apparatus;

said content distribution apparatus transmitting with a time difference at least a part of the Intra-frame encoded data.

18. The content distribution method defined in any one of claims 15 through 17, wherein said content distribution apparatus sets the time difference or the interleaving according to one of:

a state of a transmission path;

5 compression rates for encoding;

a distribution rate; and

a predetermined rule.

19. The content distribution method defined in any one of claims 15 through 18, further including the step of:

notifying setting of the time difference or the interleaving to a content receiving apparatus using at least one of call connection

5 processing and a predetermined method, by said content distribution apparatus.

20.   The content distribution method defined in any one of claims 12 through 19, further including the step of:

notifying at least one of:

a type of the encoded data for transmission;

a setting of the encoding;

a number of the encoded data;

a type of error correction encoding;

a setting of the error correction encoding;

a number of the error correction code data; and

a number of the Intra-frame encoded data;

to said content receiving apparatus, using call connection processing, by said content distribution apparatus.

21.   The content distribution method defined in any one of claims 12 through 20, wherein in case the N is the integer equal to or greater than two, each transmitting unit of the first through Nth encoded data is an encoded data unit obtained by encoding information on a same location of a same medium or in a same time period.

22.   The content distribution method defined in claim 21, wherein in case the N is the integer equal to or greater than two, said method includes the step of:

assigning a same identification number to the same transmitting unit of the first through Nth encoded data, by said content distribution apparatus.

23.   The content distribution method defined in claim 21 or 22, including the step of:

assigning to the encoded data transmitting unit of at least one of the first through Nth encoded data information allowing identification to which encoded data the encoded data transmitting unit belongs, by said content distribution apparatus.

24. The content distribution method defined in any one of claims 12 through 23, wherein at at least one of said steps of transmitting said first through Nth encoded data, said content distribution apparatus selects whether to transmit the at least a part of the data or not according to at least one of the distribution rate and the state of the transmission path.

25. The content distribution method defined in any one of claims 12 through 24, wherein when transmitting the part of the data at at least one of said steps of transmitting said first through Nth encoded data, said content distribution apparatus selects the data according to a property of encoding information or a predetermined rule.

26. The content distribution method defined in any one of claims 12 through 25, wherein said content distribution apparatus encrypts the at least a part of the encoded data to be transmitted, for transmission.

27. The content distribution method defined in claim 26, wherein said content distribution apparatus controls at least one of:

presence or absence of the encryption;

a distribution destination of an encryption key;

an encryption scheme; and

an intensity of the encryption, thereby controlling at least one of quality, stability, and confidentiality of content for distribution on a

content distribution side.

28.   The content distribution method defined in any one of claims 12 through 27, wherein said content distribution apparatus transmits the data to be output at said transmission steps using different sessions, respectively.

29.   The content distribution method defined in any one of claims 12 through 27, further including the step of:

multiplexing the data output at said transmission steps, for transmission, by said content distribution apparatus.

30.   The content distribution method defined in any one of claims 12 through 27, further including at least one step of:

multiplexing at least two outputs of the data output by the transmission processing of the first through Nth encoded data by said

5   content distribution apparatus;

said content distribution apparatus transmitting the multiplexed data and the data not multiplexed using different sessions, respectively.

31.   The content distribution method defined in any one of claims 28 through 30, wherein said content distribution apparatus performs multicast or broadcast transmission using at least one session for distribution.

32.   The content distribution method defined in any one of claims 28, 30, and 31, wherein said content distribution device controls a notification destination of session information on sessions for transmitting the data, thereby controlling quality and stability of

5   content for distribution on a content distribution side.

33.   The content distribution method defined in any one of claims 28, 30, and 31, wherein said content distribution apparatus performs at least one of routing priority control on a transmission path and power control on a wireless transmission path using at least one of the
5   sessions for distributing the data.

34.   A content receiving method comprising:

at least one of steps of (a) receiving encoded data from at least one session, by a content receiving apparatus; and

(b) receiving multiplexed encoded data from at least one session,
5   and identifying individual ones of the encoded data therefrom, by said content receiving apparatus; and

a step of extracting the encoded data received with no transmission error and no dropout from among the received encoded data and reconstructing the encoded data, for output, by said content
10 receiving apparatus.

35.   A content receiving method comprising:

at least one of steps of (a) receiving encoded data and error correction code data from at least one session, by a content receiving apparatus; and
5   (b) receiving encoded data and the error correction code data that have been multiplexed, from at least one session and identifying individual ones of the encoded data and the error correction code data therefrom, by said content receiving apparatus; and

a step of extracting the encoded data received with no
10 transmission error and no dropout from among the received data and

restoring the encoded data using the error correction code data when the transmission error or the dropout is present, thereby reconstructing the encoded data, by said content receiving apparatus.

36. The content receiving method defined in claim 34 or 35, further including at least one of steps of (c) receiving Intra-frame encoded data from at least one session; and

(d) receiving the encoded data and the Intra-frame encoded data that have been multiplexed from at least one session and identifying individual ones of the encoded data therefrom, by said content receiving apparatus.

37. The content receiving method defined in claim 36, wherein said step of reconstructing the encoded data by said content receiving apparatus includes a step of selecting the Intra-frame encoded data by a predetermined method.

38. The content receiving method defined in any one of claims 34 through 37, including a step of:

restoring the encoded data using at least one of:

an encryption key obtained by call connection processing when the encoded data is encrypted;

a distributed encryption key; and

a predetermined encryption key, by said content receiving apparatus.

39. The content receiving method defined in any one of claims 34 through 38, further including the step of:

selecting whether to receive at least one of the encoded data

based on at least one of:

5   error/loss rate of received data;

available power; and

a setting set in advance, when the at least one of the encoded data is received, by said content receiving apparatus.

40.   The content receiving method defined in any one of claims 34 through 39, further including the step of:

selecting whether to receive at least one of the error correction code data when receiving the at least one of the error correction code

5   data or selecting the error correction code data used in error correction processing, based on at least one of:

error/loss rate of received data;

error/loss state of data on a transmission path;

error correction encoding scheme;

10   available power; and

setting set in advance, by said content receiving apparatus.

41.   The content receiving method defined in any one of claims 34 through 40, including the step of:

determining whether the encoded data is duplicated or not based on an identification number assigned to a transmitting unit of the

5   encoded data by said content receiving apparatus when the encoded data is reconstructed.

42.   The content receiving method defined in any one of claims 34 through 41, including the step of:

determining at least one of a compression rate and a data type of

the encoded data by said content receiving apparatus when reconstructing the encoded data using at least one of:

(e) a predetermined distribution data receiving session;

(f) predetermined data identification information assigned to the transmitting unit of the data;

(g) a distribution data receiving session notified by call connection processing;

(h) data identification information assigned to the transmitting unit of the data and notified by the call connection processing.

43. The content receiving method defined in any one of claims 34 through 42, including the step of receiving a unit of encoded data transmitted with time difference or interleaving and securing a buffer size determined by at least one of:

(i) a predetermined receive buffer size;

(j) a buffer size notified by the call connection processing;

(k) a buffer size calculated based on a predetermined content distribution rate and information on a time difference or interleave setting; and

(l) a buffer size calculated based on a content distribution rate notified by the call connection processing and the information on the time difference or interleave setting, by said content receiving apparatus, so that the encoded data can be reconstructed.

44. The content receiving method defined in any one of claims 34 through 43, including the step of transmitting a reception status of distributed data to a content transmitting apparatus, by said content

receiving apparatus.

45.   A content encoding apparatus comprising:

first through Mth encoding means for encoding an input signal or an input data file at mutually different compression rates, respectively, (wherein M is an integer equal to or greater than two);

5   and

means for writing data encoded by said first through Mth encoding means into a file as independent tracks, respectively.

46.   A content encoding apparatus comprising:

first through Mth encoding means for encoding an input signal or an input data file at mutually different compression rates, respectively (wherein M is an integer equal to or greater than one);

5   means for generating at least one item of error correction code data from at least one of said first through Mth encode data; and

means for writing the encoded data and the error correction code data into a file as independent tracks, respectively.

47.   The content encoding apparatus defined in claim 45 or 46, further comprising:

means for Intra-frame encoding the input signal or the input data file; and

5   means for writing encoded data into a file as an independent track.

48.   A content encoding apparatus comprising:

first through Mth encoding means for encoding an input signal or an input data file at mutually different compression rates (wherein M

is an integer equal to or greater than two); and

5   means for writing plural items data encoded by said first through Mth encoding means with a preset time difference or with interleaving, into a file as independent tracks, respectively.

49.   A content encoding apparatus comprising:

means for encoding an input signal or an input data file at mutually different compression rates, respectively, (wherein M is an integer equal to or greater than one);

5   means for generating at least one item of error correction code data from at least one of said first through Mth encoded data; and

means for writing the encoded data and the error correction code data, with a preset time difference or with interleaving, into a file as independent tracks, respectively.

50.   The content encoding apparatus defined in claim 48 or 49, further including:

means for Intra-frame encoding the input signal or the input data file; and

5   means for writing encoded data, with a preset time difference or with interleaving, into a file as an independent track.

51.   The content encoding apparatus defined in any one of claims 45 through 50, wherein when the M is the integer equal to or greater than two and the encoding is performed, at least one of said second through Mth encoding means performs the encoding using an encoding

5   parameter in encoding processing at said first encoding means.

52.   The content encoding apparatus defined in any one of claims 45

through 51, wherein when the M is the integer equal to or greater than two, first through Mth encoded data output from said first through Mth encoding means are identical in encoding scheme and frame configuration thereof.

53.   The content encoding apparatus defined in any one of claims 45 through 52, wherein in case the M is the integer equal to or greater than two, the first through Mth encoded data output from said first through Mth encoding means are obtained by encoding the input signal or data in at least one of a same time period and a same location as an encoding unit and written into a file.

54.   The content encoding apparatus defined in any one of claims 45 through 53, wherein in case the M is the integer equal to or greater than two, the compression rates for the encoded data of the second through Mth encoding means are equal to or higher than a compression rate for the encoded data of said first encoding means.

55.   The content encoding apparatus defined in any one of claims 46, 47, and 49 through 54, wherein when plural items of the error correction code data are generated from the encoded data in said content encoding apparatus, each of the error correction code data is at least one of:

        (a) the error correction code data obtained by different error correction encoding schemes; and

        (b) the error correction code data obtained by the same error correction encoding scheme but by a different setting.

56.   A content distribution apparatus comprising:

means for reading at least one item of encoded data from a content file; and

first through Nth encoded data transmission means for receiving the read encoded data and outputting first through Nth encoded data (wherein N is an integer equal to or greater than two);

at least a part of the first through Nth encoded data obtained by said first through Nth encoded data transmission means being transmitted.

57.   A content distribution apparatus comprising:

means for reading at least one item of encoded data and at least one item of error correction code data from a content file;

first through Nth encoded data transmission means for receiving the read encoded data and outputting first through Nth encoded data (wherein N is an integer equal to or greater than one); and

at least one error correction code data transmission means for receiving the read error correction code data and outputting the error correction code data;

at least one of (a) at least a part of the first through Nth encoded data; and

(b) at least a part of the error correction code data being transmitted.

58.   The content distribution method defined in claim 56 or 57, further comprising:

means for reading at least one item of Intra-frame encoded data from said content file; and

5   Intra-frame encoded data transmission means for transmitting at least one Intra-frame encoded data read;

at least a part of the Intra-frame encoded data being transmitted.

59.   A content distribution apparatus comprising:

means for reading at least one item of encoded data from a content file; and

first through Nth encoded data transmission means for receiving

5   the read encoded data and outputting first through Nth encoded data (wherein N is an integer equal to or greater than two);

at least a part of the data from said first through Nth encoded data transmission means being transmitted with time difference or interleaving.

60.   A content distribution apparatus comprising:

means for reading at least one item of encoded data and at least one item of error correction code data from a content file;

first through Nth encoded data transmission means for receiving

5   the read encoded data and outputting first through Nth encoded data (wherein N is an integer equal to or greater than one); and

at least one error correction code data transmission means for receiving the read error correction code data and outputting the error correction code data;

10   at least one of:

(a) at least a part of the first through Nth encoded data, respectively; and

(b) at least a part of the error correction code data;

being transmitted with time difference or interleaving.

61.   The content distribution apparatus defined in claim 59 or 60, further comprising:

means for reading at least one item of Intra-frame encoded data from said content file; and

5   Intra-frame encoded data transmission means for transmitting the at least one read-in Intra-frame encoded;

at least a part of the Intra-frame encoded data being transmitted with a time difference or interleaving.

62.   The content distribution apparatus defined in any one of claims 59 through 61, wherein the time difference or the interleaving is set according to one of:

a state of a transmission path;

5   compression rates for encoding;

a distribution rate; and

a predetermined rule.

63.   The content distribution apparatus defined in any one of claims 59 through 62, further including:

means for notifying setting of the time difference or interleaving to a content receiving apparatus using at least one of call

5   connection processing and a predetermined method.

64.   The content distribution method defined in any one of claims 56 through 63, including:

means for notifying at least one of:

a type of the encoded data for transmission;

5   a setting of the encoding;

a number of the encoded data;

a type of error correction encoding;

setting of the error correction encoding;

a number of the error correction code data; and

10   a number of the Intra-frame encoded data;

to said content receiving apparatus, using the call connection processing.

65. The content distribution apparatus defined in any one of claims 56 through 64, wherein in case the N is the integer equal to or greater than two, each transmitting unit of the first through Nth encoded data is an encoded data unit obtained by encoding information on a same

5   location of a same medium or in a same time period.

66. The content distribution apparatus defined in claim 65, including:

means for assigning a same identification number to the same transmitting unit of the first through Nth encoded data, respectively, in

5   case the N is the integer equal to or greater than two.

67. The content distribution apparatus defined in claim 65 or 66, including:

means for assigning to the encoded data transmitting unit of at least one of the first through Nth encoded data information allowing

5   identification to which one of the encoded data the encoded data transmitting unit belongs.

68. The content distribution apparatus defined in any one of claims

56 through 67, wherein at least one of said first through Nth encoded data transmission means includes means for selecting whether to transmit the at least a part of the data for transmission or not according

5   to at least one of the distribution rate and the state of the transmission path.

69.   The content distribution apparatus defined in any one of claims 56 through 68, wherein when selecting the part of the data for transmission, at least one of said first through Nth encoded data transmission means includes means for selecting the data according to a

5   property of encoding information or the predetermined rule.

70.   The content distribution apparatus defined in any one of claims 56 through 69, comprising:

means for encrypting the at least a part of the data, for transmission.

71.   The content distribution apparatus defined in claim 70, comprising:

means for controlling at least one of:

presence or absence of the encryption;

5   a distribution destination of an encryption key;

an encryption scheme; and

an intensity of the encryption, thereby controlling at least one of quality, stability, and confidentiality of content to be distributed on a content distribution side.

72.   The content distribution apparatus defined in any one of claims 56 through 71, comprising:

means for transmitting the data to be output from said first

through Nth encoded data transmission means using different sessions,

5   respectively.

73.   The content distribution apparatus defined in any one of claims

56 through 71, including:

means for multiplexing the data output from at least two of said

first through Nth encoded data transmission means, for transmission.

74.   The content distribution apparatus defined in any one of claims

56 through 71, comprising:

at least one means for multiplexing at least two outputs of the

output data output from said encoded data transmission means;

5   the multiplexed data and the data not multiplexed being

transmitted using different sessions, respectively.

75.   The content distribution method defined in any one of claims 72

through 74, wherein multicast or broadcast transmission is performed

using at least one session for distribution.

76.   The content distribution apparatus defined in any one of claims

72, 74, and 75, comprising:

means for controlling a notification destination of session

information on a session for transmitting the data, thereby controlling

5   quality and stability of content to be distributed on a content

distribution side.

77.   The content distribution apparatus defined in any one of claims

72, 74, and 75, comprising:

means for performing at least one of routing priority control on

a transmission path and power control on a wireless transmission path

5   using at least one of sessions for distributing the data.

78.   A content receiving apparatus comprising:

at least one of

(a)means for receiving encoded data from at least one session;

(b)means for receiving multiplexed encoded data from at least

5   one session, and identifying individual ones of the encoded data

therefrom; and

means for extracting the encoded data received with no

transmission error and no dropout from among the received encoded

data and reconstructing the encoded data.

79.   A content receiving apparatus comprising:

at least one of

(a) means for receiving encoded data and error correction code

data from at least one session; and

5   (b) means for receiving encoded data and error correction code

data that have been multiplexed, from at least one session and

identifying individual ones of the encoded data and the error correction

code data therefrom; and

means for extracting the encoded data received with no

10   transmission error and no dropout from among the received data and for

restoring the encoded data using the error correction code data when

the transmission error or the dropout is present to reconstruct the

encoded data.

80.   The content receiving apparatus defined in claim 78 or 79,

further including:

at least one of

(c) means for receiving Intra-frame encoded data from at least one session; and

(d) means for receiving the encoded data and the Intra-frame encoded data that have been multiplexed from at least one session and identifying individual ones of the encoded data therefrom.

81. The content receiving apparatus defined in claim 80, wherein means for reconstructing the encoded data selects the Intra-frame encoded data by a predetermined device.

82. The content receiving apparatus defined in any one of claims 78 through 81, including:

means for restoring the encoded data using at least one of:

an encryption key obtained by call connection processing when the encoded data is encrypted;

a distributed encryption key; and

a predetermined encryption key.

83. The content receiving apparatus defined in any one of claims 78 through 82, further comprising:

means for selecting whether to receive the data by at least one of the encoded data receiving means based on at least one of:

error/loss rate of received data;

available power; and

setting set in advance.

84. The content receiving apparatus defined in any one of claims 78

through 83, further including:

a step of selecting whether to receive at least one of the error correction code data when receiving the at least one of the error

5 correction code data or the error correction code data used in error correction processing, based on at least one of:

error/loss rate of received data;

error/loss state of data on a transmission path;

error correction encoding scheme;

10 available power; and

setting set in advance.

85. The content receiving apparatus defined in any one of claims 78 through 84, wherein the means for reconstructing the encoded data determines whether the encoded data is duplicated or not based on an identification number assigned to a transmitting unit of the encoded

5 data.

86. The content receiving apparatus defined in any one of claims 78 through 85, wherein the means for reconstructing the encoded data comprises means for determining at least one of a compression rate and a data type of the encoded data using at least one of:

5 (e) a predetermined distribution data receiving session;

(f) predetermined data identification information assigned to the transmitting unit of the data;

(g) a distribution data receiving session, notified by the call connection processing; and

10 (h) data identification information assigned to the transmitting

unit of the data and notified by the call connection processing.

87. The content receiving apparatus defined in any one of claims 78 through 86, wherein a unit of encoded data transmitted with time difference or interleaving is received, and a buffer size determined by at least one of:

5   (i) a predetermined receive buffer size;

(j) a buffer size notified by the call connection processing;

(k) a buffer size calculated based on a predetermined content distribution rate and information on a time difference or interleave setting; and

10   (l) a buffer size calculated based on a content distribution rate notified by the call connection processing and the information on the time difference or interleave setting; is secured so that the encoded data can be reconstructed.

88. The content receiving apparatus defined in any one of claims 78 through 87, comprising:

means for transmitting a reception status of distributed data to a content distribution apparatus.

89. A program for causing a computer constituting a device for encoding a content to execute:

first through Mth encoding processing of encoding an input signal or an input data file at mutually different compression rates,

5 respectively, (wherein M is an integer equal to or greater than two); and

processing of writing encoded data into a file as independent

tracks, respectively.

90. A program for causing a computer constituting a device for encoding a content to execute:

first through Mth encoding processing of encoding an input signal or an input data file at mutually different compression rates, respectively (wherein M is an integer equal to or greater than one);

processing of generating at least one item of error correction code data from at least one of encoded data obtained by the first through Mth encoding processing; and

processing of writing the encoded data and the error correction code data into a file as independent tracks, respectively.

91. The program defined in claim 89 or 90, for causing said computer to further execute:

processing of Intra-frame encoding the input signal or the input data file; and

processing of writing encoded data into said file as an independent track.

92. A program for causing a computer constituting a device for encoding a content to execute:

first through Mth encoding processing of encoding an input signal or an input data file at mutually different compression rates (wherein M is an integer equal to or greater than two), respectively; and

processing of writing encoded data with time difference or interleaving into a file as independent tracks, respectively.

93.   A program for causing a computer constituting a device for encoding a content to execute:

first through Mth encoding processing of encoding an input signal or an input data file at mutually different compression rates,

5   respectively (wherein M is an integer equal to or greater than one);

processing of generating at least one item of error correction code data from at least one of encoded data obtained by the first through Mth encoding processing; and

processing of writing encoded data and error correction code

10   data, with time difference or interleaving into a file as independent tracks, respectively.

94.   The program defined in claim 92 or 93, for causing said computer to execute processing of:

Intra-frame encoding the input signal or the input data file; and

writing encoded data, with time difference or interleaving into a

5   file, as an independent track.

95.   The program defined in any one of claims 89 through 94, for causing said computer to execute processing of:

performing the encoding in at least one of the second through Mth encoding processing using an encoding parameter in the first

5   encoding processing when the M is the integer equal to or greater than two and when the encoding is performed.

96.   The program defined in any one of claims 89 through 95, wherein when the M is the integer equal to or greater than two, first through Mth encoded data obtained by the first through Mth encoding

processing uses a same method of the encoding and have a same frame

5   configuration.

97.   The program defined in any one of claims 89 through 96, wherein when the M is the integer equal to or greater than two, the input signal or data in at least one of a same time period and a same location is encoded as an encoding unit and written into said file.

98.   The program defined in any one of claims 89 through 97, wherein when the M is the integer equal to or greater than two, the compression rates for the second through Mth encoded data are set to be equal to or higher than a compression rate for the first encoded data.

99.   The program defined in any one of claims 90, 91, and 93 through 98, wherein when a plurality of the error correction code data are generated from the encoded data, each of the error correction code data is at least one of:

5   (a) error correction code data obtained by different error correction encoding schemes; and

        (b) error correction code data obtained by an identical error correction encoding scheme but by a different setting.

100.   A program for causing a computer constituting a device for distributing a content to execute processing of:

        reading at least one item of encoded data from a content file; and

5   receiving the encoded data and transmitting at least a part of first through Nth encoded data using processing of transmitting the first through Nth encoded data (wherein N is an integer equal to or

greater than two).

101. A program for causing a computer constituting a device for distributing a content to execute processing of:

reading at least one item of encoded data and at least one item of error correction code data from a content file;

5   transmitting first through Nth encoded data (wherein N is an integer equal to or greater than one);

transmitting at least one item of error correction code data; and

transmitting at least one of

(a) at least a part of the first through Nth encoded data; and

10   (b) at least a part of the error correction code data.

102. The program defined in claim 100 or 101, for causing said computer to execute processing of:

reading at least one item of Intra-frame encoded data from said content file; and

5   transmitting at least a part of the Intra-frame encoded data.

103. The program for causing a computer constituting a device for distributing a content to execute processing of:

reading at least one item of encoded data from a content file;

transmitting first through Nth encoded data (wherein N is an

5 integer equal to or greater than two); and

transmitting at least a part of the first through Nth encoded data with time difference or interleaving.

104. A program for causing a computer constituting a device for distributing a content to execute processing of:

reading at least one item of encoded data and at least one item of error correction code data from a content file;

5   transmitting first through Nth encoded data (wherein N is an integer equal to or greater than one);

transmitting at least one item of error correction code data; and

transmitting, with time difference or interleaving, at least one of:

10   (a) at least a part of the first through Nth encoded data, respectively; and

(b) at least a part of the error correction code data.

105.   The program defined in claim 103 or 104, further comprising processing of:

reading at least one item of Intra-frame encoded data from a content file; and

5   transmitting at least one Intra-frame encoded data;

said program causing said computer to execute processing of:

transmitting at least a part of the Intra-frame encoded data with time difference or interleaving.

106.   The program defined in any one of claims 103 through 105, for causing said computer to execute processing of:

setting the time difference or the interleaving according to at least one of:

5   a state of a transmission path;

compression rates for encoding:

a distribution rate; and

a predetermined rule.

107. The program defined in any one of claims 103 through 106, for causing said computer to execute processing of:

notifying a setting of the time difference or the interleaving using at least one of call connection processing and a predetermined

5   method.

108. The program defined in any one of claims 100 through 107, for causing said computer to execute processing of:

by using the call connection processing, notifying at least one of:

5   a type of the encoded data for transmission;

a setting of the encoding;

a number of the encoded data;

a type of error correction encoding

a setting of the error correction encoding;

10   a number of the error correction code data; and

a number of the Intra-frame encoded data.

109. The program defined in any one of claims 100 through 108, wherein in case the N is the integer equal to or greater than two, each transmitting unit of the first through Nth encoded data is an encoded data unit obtained by encoding information on a same location of a

5   same medium or in a same time period.

110. The program defined in claim 109, for causing said computer to execute processing of:

assigning a same identification number to the same transmitting

unit of the first through Nth encoded data, respectively, in case the N is

5   the integer equal to or greater than two.

111.   The program defined in claim 109 or 110, for causing said computer to execute processing of:

assigning to the encoded data transmitting unit of at least one of the first through Nth encoded data information allowing identification

5   to which one of the encoded data the encoded data transmitting unit belongs.

112.   The program defined in any one of claims 100 through 111, for causing said computer to execute processing of:

selecting whether to transmit the at least a part of the data for transmission or not according to at least one of the distribution rate

5   and the state of a transmission path.

113.   The program defined in any one of claims 100 through 112, for causing said computer to execute processing of:

selecting the part of the data for transmission according to a property of encoding information or the predetermined rule when

5   selecting the part of the data for transmission.

114.   The program defined in any one of claims 100 through 113, for causing said computer to execute processing of:

encrypting the at least a part of the data, for transmission.

115.   The program defined in claim 114, for causing said computer to execute processing of:

controlling at least one of:

presence or absence of the encryption;

5   a distribution destination of an encryption key;

an encryption scheme; and

an intensity of the encryption, thereby controlling at least one of quality, stability, and confidentiality of content for distribution on a content distribution side.

116. The program defined in any one of claims 100 through 115, for causing said computer to execute processing of:

transmitting the data to be output by the transmission processing using different sessions.

117. The program defined in any one of claims 100 through 115, for causing said computer to execute processing of:

multiplexing the data output by the transmission processing, for transmission.

118. The program defined in any one of claims 100 through 115, for causing said computer to execute processing of multiplexing at least two outputs of the output data from the transmission processing; and

transmitting the multiplexed data and the data not multiplexed, 5 using different sessions, respectively.

119. The program defined in any one of claims 116 through 118, for causing said computer to execute processing of:

performing multicast or broadcast transmission, using at least one session for distribution.

120. The program defined in any one of claims 116, 118, and 119, for causing said computer to execute processing of:

controlling a notification destination of session information on a

session for transmitting the data, thereby controlling quality and

5 stability of content for distribution on a content distribution side.

121. The program defined in any one of claims 116, 118, and 119, for

causing said computer to execute processing of:

performing at least one of routing priority control on a

transmission path and power control on a wireless transmission path

5 using at least one of the sessions for distributing the data.

122. A program for causing a computer constituting a device for

receiving a content to execute:

at least one of processing of (a) receiving encoded data from at

least one session; and

5 (b) receiving multiplexed encoded data from at least one session,

and identifying individual ones of the encoded data therefrom; and

processing of extracting the encoded data received with no

transmission error and no dropout from among the received encoded

data and reconstructing the encoded data, for output.

123. A program for causing a computer constituting a device for

receiving a content to execute:

at least one of

(a) processing of receiving encoded data and error correction

5 code data from at least one session; and

(b) processing of receiving encoded data and error correction

code data that have been multiplexed, from at least one session and

identifying individual ones of the encoded data and the error correction

code data therefrom; and

10   extracting the encoded data received with no transmission error and no dropout from among the received data, and restoring the encoded data using error correction code data when the transmission error or the dropout is present, thereby reconstructing the encoded data.

124.   The program defined in claim 122 or 123, for executing at least one of:

(c) processing of receiving Intra-frame encoded data from at least one session;

5   (d) processing of receiving the encoded data and the Intra-frame encoded data that have been multiplexed from at least one session and identifying individual ones of the encoded data therefrom.

125.   The program defined in claim 124, for causing said computer to execute processing of:

selecting the Intra-frame encoded data during the processing for reconstructing the encoded data.

126.   The program defined in any one of claims 122 through 125, for causing said computer to execute processing of:

restoring the encoded data using at least one of:

an encryption key obtained by call connection processing when

5   the encoded data is encrypted;

a distributed encryption key; and

a predetermined encryption key.

127.   The program defined in any one of claims 122 through 126, for causing said computer to execute processing of:

selecting whether to receive the data during at least one of the

encoded data receiving processing, based on at least one of:

5   error/loss rate of received data;

available power; and

a predetermined setting.

128. The program defined in any one of claims 122 through 127, for causing said computer to select whether to receive at least one of the error correction code data when receiving the at least one of the error correction code data or the error correction code data used in error

5 correction processing, based on at least one of:

error/loss rate of received data;

error/loss state of data on a transmission path;

error correction encoding scheme;

available power; and

10   predetermined setting.

129. The program defined in any one of claims 122 through 128, for causing said computer to execute processing of:

determining whether the encoded data is duplicated or not based on an identification number assigned to a transmitting unit of the

5 encoded data.

130. The program defined in any one of claims 122 through 129, for causing said computer to execute processing of:

determining at least one of a compression rate and a data type of the encoded data using at least one of:

5   (e) a predetermined distribution data receiving session;

(f) predetermined data identification information assigned to the

transmitting unit of the data;

(g) a distribution data receiving session, notified by the call connection processing; and

10   (h) data identification information assigned to the transmitting unit of the data and notified by the call connection processing.

131. The program defined in any one of claims 122 through 130, for causing said computer to execute processing of:

receiving a unit of encoded data transmitted with time difference or interleaving and securing a buffer size determined by at least one of:

5   (i) a predetermined receive buffer size;

(j) a buffer size notified by the call connection processing;

(k) a buffer size calculated based on a predetermined content distribution rate and information on a time difference or interleave setting; and

10   (l) a buffer size calculated based on a content distribution rate notified by the call connection processing and the information on the time difference or interleave setting.

132. The program defined in any one of claims 122 through 131, for causing said computer to execute processing of:

transmitting a reception status of distributed data to a content distribution apparatus.

133. A content distribution system including a content transmitting apparatus and one or more content receiving apparatuses connected to said content transmitting apparatus through a transmission path, wherein

5   said content transmission apparatus comprises:

a content file with M encoded data (wherein M is a predetermined positive integer) with different compression rates stored therein;

means for reading at least one item of encoded data from said

10   content file;

first through Nth transmission means (wherein N is a predetermined positive integer) for transmitting the encoded data; and

means for setting routing priority control on said transmission path for each session and power control on a wireless transmission

15   path;

each of said transmission means transmitting the encoded data using mutually different sessions; and

wherein each of said content receiving apparatuses comprises:

means for receiving the encoded data from at least one of the

20   sessions;

means for selecting whether to receive the encoded data from the at least one of the sessions based on at least one of an error and loss rate of the received data, power that can be used by a reception side, and a predetermined setting;

25   means for extracting the encoded data received with no transmission error or no dropout, thereby reconstructing the encoded data; and

means for decoding the reconstructed encoded data.

134.   A content distribution system including a content transmitting

apparatus and one or more content receiving apparatuses connected to said content transmitting apparatus through a transmission path, wherein

5   said content transmission apparatus comprises:

means for reading at least one item of encoded data from a content file with M encoded data (wherein M is a predetermined positive integer) with different compression rates stored therein;

first through Nth encoded data processing means(wherein N is a

10   predetermined positive integer); and

multiplexing transmission means for multiplexing at least two outputs of said first through Nth encoded data processing means, for transmission;

the multiplexed encoded data being transmitted using at least

15   one session; and wherein

each of said content receiving apparatuses comprises:

means for receiving the multiplexed encoded data from at least one of the sessions;

means for extracting the encoded data received with no

20   transmission error or no dropout, thereby reconstructing the encoded data; and

means for decoding the reconstructed encoded data.

135. A content distribution system including a content transmitting apparatus and one or more content receiving apparatuses connected to said content transmitting apparatus through a transmission path, wherein

5   said content transmission apparatus comprises:

means for reading at least one item of encoded data and at least one Intra-frame encoded data from a content file with M (wherein M is a predetermined positive integer) encoded data with different compression rates stored therein;

10   first through Nth transmission means (wherein N is a predetermined positive integer) for transmitting encoded data;

transmission means for transmitting at least one Intra-frame encoded data; and

means for setting routing priority control on said transmission 15   path for each session and power control on a wireless transmission path;

each of said transmission means transmitting the encoded data using mutually different sessions; and wherein

each of said content receiving apparatuses comprises:

20   means for receiving the encoded data and the intra-frame encoded data from at least one of the sessions;

means for selecting whether to receive the encoded data from the at least one of the sessions based on at least one of an error and loss rate of the received data, power that can be used by a reception 25   side, and a predetermined setting;

means for extracting the encoded data received with no transmission error or no dropout, thereby reconstructing the encoded data; and

means for decoding the reconstructed encoded data.

136.   A content distribution system including a content transmitting apparatus and one or more content receiving apparatuses connected to said content transmitting apparatus through a transmission path, wherein

5   each of said content transmission apparatuss comprises:

means for reading at least one item of encoded data and at least one Intra-frame encoded data from a content file with M encoded data (wherein M is a predetermined positive integer) with different compression rates stored therein;

10   first through Nth encoded data processing means (wherein N is a predetermined positive integer);

at least one Intra-frame encoded data processing means; and

multiplexing transmission means for multiplexing at least two outputs of said first through Nth encoded data processing means and

15   the Intra-frame encoded data, for transmission;

the multiplexed encoded data being transmitted using at least one session; and wherein

said content receiving apparatus comprises:

means for receiving the multiplexed encoded data from the at

20   least one session;

means for extracting the encoded data received with no transmission error or no dropout, thereby reconstructing the encoded data; and

means for decoding the reconstructed encoded data.

137.   A content distribution system including a content transmitting

apparatus and one or more content receiving apparatuses connected to said content transmitting apparatus through a transmission path, wherein

5   said content transmission apparatus comprises:

means for reading at least one item of encoded data and at least one item of error correction code data from a content file with M encoded data (wherein M is a predetermined positive integer) with different compression rates and the at least one item of error correction

10   code data for the encoded data stored therein;

first through Nth encoded data transmission means (wherein N is a predetermined positive integer);

at least one error correction code data transmission means; and

means for setting routing priority control on said transmission

15   path for each session and power control on a wireless transmission path;

each of said transmission means transmitting the encoded data using mutually different sessions; and wherein

each of said content receiving apparatuses comprises:

20   means for receiving the encoded data and the error correction code data from at least one of the sessions;

means for selecting whether to receive the encoded data from the at least one of the sessions based on at least one of an error and loss rate of the received data, power that can be used by a reception

25   side, and a predetermined setting;

means for extracting the encoded data received with no

transmission error or no dropout, thereby reconstructing the encoded data; and

means for decoding the reconstructed encoded data.

138. A content distribution system including a content transmitting apparatus and one or more content receiving apparatuses connected to said content transmitting apparatus through a transmission path, wherein

5   said content transmitting apparatus comprises:

a content file with M encoded data (wherein M is a predetermined integer) with different compression rates and at least one item of error correction code data for the encoded data stored therein;

10   means for reading at least one of the encoded data and the at least one item of error correction code data from said content file;

first through Nth encoded data processing means (wherein N is a predetermined positive integer);

at least one item of error correction code data processing means; 15   and

means for multiplexing at least two outputs of outputs of said first through Nth encoded data processing means and said error correction code data processing means;

the multiplexed data being transmitted using at least one 20   session; and wherein

each of said content receiving apparatuses comprises:

receiving means for receiving the multiplexed data from the at

least one session;

means for extracting the encoded data received with no transmission error or no dropout, and restoring the data using the error correction code data when the transmission error or the dropout is present, thereby reconstructing the encoded data; and

means for decoding the reconstructed encoded data.

139. The content distribution system defined in claim 133 or 134, including:

said content encoding apparatus as set forth in any one of claims 45, 48, and 51 through 54, as a device for creating said content file.

140. The content distribution system defined in claim 135 or 136, including:

said content encoding apparatus as set forth in any one of claims 47, 50, and 51 through 54, as a device for creating said content file.

141. The content distribution system defined in claim 137 or 138, including:

said content encoding apparatus as set forth in any one of claims 46, 49, and 51 through 54, as a device for creating said content file.

142. A content transmission and reception method, comprising:

an encoding apparatus creating plural items of encoded data or plural items of encoded data and at least one item of error correction code data from same content data, for storage in a content file;

a content distribution apparatus, when transmitting a content to a content receiving apparatus, reading the plural items of encoded data or the plural items of encoded data and the at least one item of error

correction code data from said content file, and transmitting a part or all of the plural items of encoded data or the part or the all of the

10   plural items of encoded data and the at least one item of error correction code data to said content receiving apparatus; and

said content receiving apparatus extracting normally received data from the encoded data transmitted from said content distribution apparatus, for reconstruction, and decode the reconstructed data.